Remarks

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and the following remarks. Claims 1, 2, and 5-21 are pending in the application. Claims 1, 2, and 5-21 are rejected. No claims have been allowed. Claims 1, 10, 14, 18, and 20 are independent. Claims 1, 10, 14, 18, and 20 have been amended.

Cited Art

The Action cites:

Sudharsanan et al., U.S. Patent No. 6,654,503 (hereafter "Sudharsanan");

Kajiwara, U.S. Patent No. 6,028,963 (hereinafter "Kajiwara");

Merhav et al., Optimal Prefix Codes for Sources with Two-Sided Geometric Distributions (hereinafter "Merhav");

Irvine et al., U.S. Patent Publication No. 2003/0039396 (hereinafter "Irvine"); and

Nakayama et al., U.S. Patent Publication No. 2003/0118242 (hereinafter "Nakayama").

Request for Information Disclosure Statement to be Reviewed

Applicants note that the Action does not include an initialed copy of the Form 1449 which accompanied an Information Disclosure Statement filed on June 9, 2005. Applicants request the Examiner provide an initialed copy of the Form 1449.

Claim Rejections under 35 U.S.C. § 103(a)

The Action rejects claims 1, 9, 10, 13, and 14 under 35 U.S.C § 103(a) as unpatentable over Merhav in combination with Sudharsanan and Kajiwara.

The Action rejects claims 2, 5, 6, 11, 15, and 16 under 35 U.S.C § 103(a) as unpatentable over Merhav in combination with Sudharsanan and Kajiwara and further in view of Irvine.

The Action rejects claims 7, 8, 12, and 17 under 35 U.S.C § 103(a) as unpatentable over Merhav in combination with Sudharsanan and Kajiwara and further in view of Nakayama.

The Action rejects claims 18-21 under 35 U.S.C § 103(a) as unpatentable over Nakayama in combination with Irvine, Sudharsanan and Kajiwara.

Applicants traverse the rejections.

Claims 1 and 9 are Allowable Over Merhav in Combination with Sudharsanan and Kajiwara

Amended claim 1 recites, in part:

> for an individual one of the block portions, selecting one of multiple available differential pulse code modulation (DPCM) prediction modes to apply to the block portion based upon which DPCM prediction mode, out of the available DPCM prediction modes, yields a closer to optimal two-sided, zero-biased symbol distribution of a run-length, Golomb-Rice entropy encoder.

Merhav, Sudharsanan, and Kajiwara, whether considered separately or in combination with each other, fail to teach or suggest the above recited language of amended claim 1.

Regardless of whether Sudharsanan describes DPCM prediction modes, as the Examiner alleges at page 3 of the Office Action, Sudharsanan does not teach or suggest selecting "based upon which DPCM prediction mode, out of the available DPCM prediction modes, yields a closer to optimal two-sided, zero-biased symbol distribution of a [RLGR] entropy encoder" as recited in amended claim 1. Instead, Sudharsanan states:

> Where the following bock is not dc-only, the predictor that gives the best cumulative results for each PxQ block is chosen. Thus, each PxQ block may require a different choice of Pred_index. Given a block to be encoded, any suitable criterion may be used to select the predictor coefficients.
> (Sudharsanan, 5:11-16.)

The above cited portion of Sudharsanan does not teach or suggest any actual criterion usable to select predictor coefficients, but merely states that "any suitable" criterion may be used. Applicants are not trying to specifically claim the existence of a two-sided, zero-biased symbol distribution, or claim simply using some criterion, but the claim recites selecting one of multiple available DPCM prediction modes "based upon which DPCM prediction mode, out of the available DPCM prediction modes, yields a closer to optimal two-sided, zero-biased symbol distribution of a [RLGR] entropy encoder." Sudharsanan does not teach or suggest this element of amended claim 1.

Applicants additionally note that one of ordinary skill in the art would not be led to the above recited language of amended claim 1. Sudharsanan describes "prediction residuals (difference between actual and predicted values) **are mapped to a non-negative integer scale** and are coded using a new entropy-coded mechanism based on a modified Golomb Code (MGC)." (Sudharsanan, 2:8-11. Emphasis added. *See, also*, Sudharsanan, 5:46-6:53 for a further description of mapping to the non-negative integer scale.) Thus, it would not be obvious to one of ordinary skilled in the art to select one of multiple available DPCM prediction modes "based upon which DPCM prediction mode, out of

the available DPCM prediction modes, yields a closer to optimal two-sided, zero-biased symbol distribution of a [RLGR] entropy encoder" as recited in amended claim 1.

Merhav does not cure this deficiency in Sudharsanan. To the extent that Merhav discusses Golomb coding, Merhav states, "Although the center TSGD is an appropriate model for memoryless image compression schemes, it has been observed [3], [4] that prediction errors in *context-based* schemes [3]-[6] exhibit a dc offset, and a more appropriate model is given by an *off-centered* TSGD." (Merhav, page 1, col. 1. Emphasis in original.) Thus, Merhav explicitly teaches **away** from a "two-sided, zero-biased symbol distribution" by stating that a more appropriate model is given by an **off-centered** two-sided geometric distribution. Additionally, at no point does Merhav teach, suggest, or even mention selecting one of multiple available DPCM prediction modes. Thus, Merhav does not teach or suggest selecting one of multiple available DPCM prediction modes "based upon which DPCM prediction mode, out of the available DPCM prediction modes, yields a closer to optimal two-sided, zero-biased symbol distribution of a [RLGR] entropy encoder" as recited in amended claim 1.

Kajiwara does not cure this deficiency in Sudharsanan and Merhav with respect to the above recited language of amended claim 1. Kajiwara describes:

> The buffer 702 stores the signal of two lines inputted from the signal line 701. The predictor 704 reads the image data of peripheral pixels a, b, and c of the encoding target pixel x from the buffer 702, and obtains prediction value p for the encoding target pixel x by calculating p=a+b-c. Positions of the peripheral pixels a, b, and c for the encoding target pixel x are shown in FIG. 3. The context generator 703 firstly reads the peripheral pixels a, b, and c of the encoding target pixel x from the buffer 702, and secondly obtains values (a-c) and (b-c). Then, the context generator 703 obtains values q(a-c) and q(b-c) by quantizing each of the two values (a-c) and (b-c) into three levels in accordance with a table shown in FIG. 9. By using such results, the context generator 703 calculates the context S=3xq(a-c)+q(b-c) to generate and output the context S="0" to "8".
> (Kajiwara, 7:20-34.)

As Applicants understand Kajiwara, Kajiwara then describes, at col. 9, line 13 *et. seq.*, a conversion process wherein a flag value and the prediction errors are checked to determine which conversion process to use to convert the prediction error values to non-negative values.

Thus, Applicants understand Kajiwara to describe only a single prediction mode, namely p=a+b-c. To the extent that certain flags are checked, the flags simply determine which conversion process to use for the prediction errors. This is different from, and does not teach or suggest selecting one of multiple available DPCM prediction modes "based upon which DPCM prediction mode, out of

the available DPCM prediction modes, yields a closer to optimal two-sided, zero-biased symbol distribution of a [RLGR] entropy encoder" as recited in amended claim 1.

Because Merhav, Sudharsanan, and Kajiwara, whether considered separately or in combination with each other, do not teach or suggest each and every element of amended claim 1, claim 1 is allowable over Merhav, Sudharsanan, and Kajiwara. Dependent claim 9 is allowable at least because it depends from allowable amended claim 1. Applicants respectfully request withdrawal of the § 103(a) rejections and allowance of claims 1 and 9.

Dependant Claims 2, 5, and 6 are Allowable Over Merhav in View of Sudharsanan, Kajiwara, and Irvine

As described above, amended claim 1 is allowable because Merhav, Sudharsanan, and Kajiwara, whether considered separately or in combination with each other, do not teach or suggest "selecting one of multiple available differential pulse code modulation (DPCM) prediction modes to apply to the block portion based upon which DPCM prediction mode, out of the available DPCM prediction modes, yields a closer to optimal two-sided, zero-biased symbol distribution of a run-length, Golomb-Rice entropy encoder" as recited in amended claim 1. Irvine does not cure this deficiency of Merhav, Sudharsanan, and Kajiwara with respect to the above recited language of amended claim 1.

Irvine describes:

> Since the prediction removes pixel correlation, the residual pixels have a reduced dynamic range with a characteristic two-sided exponential (Laplacian) distribution. Hence the compression. The amount of compression of the residuals depends on both the prediction and subsequent entropy encoding methods. Most commonly used prediction methods are differential pulse code modulation (DPCM) and its variants such as the adaptive DPCM (ADPCM).
> (Irvine, para. 0017.)

Thus, to the extent that Irvine describes prediction methods such as DPCM or a two-sided distribution, at no point does Irvine teach or suggest selection of one of multiple available DPCM prediction modes "based upon which DPCM prediction mode, out of the available DPCM prediction modes, yields a closer to optimal two-sided, zero-biased symbol distribution of a run-length, Golomb-Rice entropy encoder" as recited in amended claim 1.

Even if, for the sake of argument, Irvine describes color space conversion or RLGR encoding as the Examiner alleges at pages 8 and 9 of the Office Action, this does not cure the deficiency of Irvine with respect to the above recited language of amended claim 1.

Because Merhav, Sudharsanan, Kajiwara, and Irvine, whether considered separately or in combination with each other, do not teach or suggest each and every element of amended claim 1, claim 1 is allowable over Merhav, Sudharsanan, Kajiwara, and Irvine. Dependent claims 2, 5, and 6 are allowable at least because they depend from allowable amended claim 1. Applicants respectfully request withdrawal of the § 103(a) rejections and allowance of dependent claims 2, 5, and 6.

Dependent Claims 7 and 8 are Allowable Over Merhav in View of Sudharsanan, Kajiwara, and Nakayama

As described above, amended claim 1 is allowable because Merhav, Sudharsanan, and Kajiwara, whether considered separately or in combination with each other, do not teach or suggest "selecting one of multiple available differential pulse code modulation (DPCM) prediction modes to apply to the block portion based upon which DPCM prediction mode, out of the available DPCM prediction modes, yields a closer to optimal two-sided, zero-biased symbol distribution of a run-length, Golomb-Rice entropy encoder" as recited in amended claim 1. Nakayama does not cure this deficiency of Merhav, Sudharsanan, and Kajiwara with respect to the above recited language of amended claim 1.

Nakayama describes:

> FIG. 2 is a diagram showing the positional relationship of the object pixel and its peripheral pixels a, b, c, and d. In FIG. 2, the peripheral pixels a, b, c, and d are those relative to the object pixel that have already been encoded. The pairs d-b, b-c, and c-a are obtained by using the image data a, b, c, and d that have been read. . . .
>
> The status number S which represents the status of a peripheral pixel, is generated using the calculation formula q(d-b)x81+q(b-c)x9+q(c-a). Then, the sign of the status number S is examined to determine whether it is positive or negative. . . . Through this processing, status numbers, from 0 to 365, and the phase flag R, which indicates a value of 0 or 1, are generated and output.
>
> **The mode selector 111 selects an encoding mode and changes the switches 112 and 113 by using the status number S, obtained by using the status discriminating circuit 110 and a run length RL and an encoding control signal Q that are generated by the run-length counter 108**. The initial value of the run-length RL of the run-length counter 108 is 0.
>
> (Nakayama, paras. 0050-0052. Emphasis added.)

Nakayama further describes the three encoding modes in paras. 0058-0060. As Applicants understand Nakayama, the three modes are encoding modes for encoding the pixel. However, Applicants see no indication that the encoding modes involve "selecting one of multiple available

differential pulse code modulation (DPCM) prediction modes" as recited in amended claim 1. Because Nakayama does not teach, suggest, or even mention selecting one of multiple available **DPCM prediction modes**, Nakayama does not teach or suggest "selecting one of multiple available differential pulse code modulation (DPCM) prediction modes to apply to the block portion based upon which DPCM prediction mode, out of the available DPCM prediction modes, yields a closer to optimal two-sided, zero-biased symbol distribution of a run-length, Golomb-Rice entropy encoder" as recited in amended claim 1.

Because Merhav, Sudharsanan, Kajiwara, and Nakayama, whether considered separately or in combination with each other, do not teach or suggest each and every element of amended claim 1, claim 1 is allowable over Merhav, Sudharsanan, Kajiwara, and Nakayama. Dependent claims 7 and 8 are allowable at least because they depend from amended claim 1. Applicants respectfully request withdrawal of the § 103(a) rejections and allowance of dependent claims 7 and 8.

Claims 10-13 are Allowable

Independent amended claim 10 recites, in part:

> a multi-mode differential pulse code modulation (DPCM) process operating on an individual macro-block of the input image data to choose one of multiple DPCM prediction modes based upon which one of the multiple DPCM prediction modes produces a residual distribution for the macro-block to more closely match an optimal two-sided, zero-biased, run-length, Golomb-Rice (RLGR) entropy coding distribution, and applies the chosen DPCM prediction mode to the macro-block.

Merhav, Sudharsanan, and Kajiwara, whether considered separately or in combination with each other, do not teach or suggest the above recited language of amended independent claim 10.

As described above, Sudharsanan merely states that "any suitable" criterion may be used. Applicants are not trying to specifically claim the existence of a two-sided, zero-biased symbol distribution, or claim simply using some criterion, but the claim recites choosing "one of multiple DPCM prediction modes based upon which one of the multiple DPCM prediction modes produces a residual distribution for the macro-block to more closely match an optimal two-sided, zero-biased, [RLGR] entropy coding distribution." Sudharsanan does not teach or suggest this element of amended independent claim 10. Additionally, Sudharsanan describes prediction residuals **are mapped to a non-negative integer scale** and are coded using a new entropy-coded mechanism based on a modified Golomb Code (MGC). Thus, it would not be obvious to one of ordinary skilled in the art to choose

"one of multiple DPCM prediction modes based upon which one of the multiple DPCM prediction modes produces a residual distribution for the macro-block to more closely match an optimal two-sided, zero-biased, [RLGR] entropy coding distribution" as described in amended independent claim 10.

As described above, Merhav does not cure this deficiency in Sudharsanan. To the extent that Merhav discusses Golomb coding, Merhav explicitly teaches **away** from a "two-sided, zero-biased symbol distribution" by stating that a more appropriate model is given by an **off-centered** two-sided geometric distribution. Additionally, at no point does Merhav teach, suggest, or even mention selecting one of multiple available DPCM prediction modes. Thus, Merhav does not teach or suggest choosing "one of multiple DPCM prediction modes based upon which one of the multiple DPCM prediction modes produces a residual distribution for the macro-block to more closely match an optimal two-sided, zero-biased, [RLGR] entropy coding distribution" as recited in amended independent claim 10.

Kajiwara does not cure this deficiency in Sudharsanan and Merhav with respect to the above recited language of amended independent claim 10. As described above, Applicants understand Kajiwara to describe only a single prediction mode, namely p=a+b-c. To the extent that certain flags are checked, the flags simply determine which conversion process to use for the prediction errors. This is different from, and does not teach or suggest choosing "one of multiple DPCM prediction modes based upon which one of the multiple DPCM prediction modes produces a residual distribution for the macro-block to more closely match an optimal two-sided, zero-biased, [RLGR] entropy coding distribution" as recited in amended independent claim 10.

Because Merhav, Sudharsanan, and Kajiwara, whether considered separately or in combination with each other, do not teach or suggest each and every element of amended independent claim 10, claim 10 is allowable over Merhav, Sudharsanan, and Kajiwara. Dependent claim 13 is allowable at least because it depends from allowable claim 10. Applicants respectfully request withdrawal of the § 103(a) rejections and allowance of claims 10 and 13.

Irvine does not cure the deficiencies of Merhav, Sudharsanan, and Kajiwara with respect to the above recited language of amended independent claim 10. As described above, to the extent that Irvine describes prediction methods such as DPCM or a two-sided distribution, at no point does Irvine teach or suggest choosing "one of multiple DPCM prediction modes based upon which one of the multiple DPCM prediction modes produces a residual distribution for the macro-block to more closely

match an optimal two-sided, zero-biased, [RLGR] entropy coding distribution" as recited in amended independent claim 10. Even if, for the sake of argument, Irvine describes color space conversion as the Examiner alleges at page 9 of the Office Action, this does not cure the deficiency of Irvine with respect to the above recited language of amended independent claim 10. Because Merhav, Sudharsanan, Kajiwara, and Irvine, whether considered separately or in combination with each other, do not teach or suggest each and every element of amended independent claim 10, claim 10 is allowable over Merhav, Sudharsanan, Kajiwara, and Irvine. Dependent claim 11 is allowable at least because it depends from claim 10. Applicants respectfully request withdrawal of the § 103(a) rejection and allowance of dependent claim 11.

Similarly, Nakayama does not cure the deficiencies of Merhav, Sudharsanan, and Kajiwara with respect to the above recited language of amended independent claim 10. As described above, Nakayama describes three encoding modes in paras. 0058-0060. As Applicants understand Nakayama, the three modes are encoding modes for encoding the pixel. However, Applicants see no indication that the encoding modes involve "choosing one of multiple DPCM prediction modes" as recited in amended claim 10. Because Nakayama does not teach, suggest, or even mention choosing one of multiple available **DPCM prediction modes**, Nakayama does not teach or suggest choosing "one of multiple DPCM prediction modes based upon which one of the multiple DPCM prediction modes produces a residual distribution for the macro-block to more closely match an optimal two-sided, zero-biased, [RLGR] entropy coding distribution" as recited in amended independent claim 10. Because Merhav, Sudharsanan, Kajiwara, and Nakayama, whether considered separately or in combination with each other, do not teach or suggest each and every element of amended independent claim 10, claim 10 is allowable over Merhav, Sudharsanan, Kajiwara, and Nakayama. Dependent claim 12 is allowable at least because it depends from claim 10. Applicants respectfully request withdrawal of the § 103(a) rejection and allowance of dependent claim 12.

Claims 14-17 are Allowable

Independent amended claim 14 recites, in part:

> for a macro-block of the image data, determining a DPCM prediction mode based upon which DPCM prediction mode from a group of available DPCM prediction modes produces residuals closest to an optimal two-sided, zero-biased distribution for RLGR coding.

Merhav, Sudharsanan, and Kajiwara, whether considered separately or in combination with each other, do not teach or suggest the above recited language of amended independent claim 14.

As described above, Sudharsanan merely states that "any suitable" criterion may be used. Applicants are not trying to specifically claim the existence of a two-sided, zero-biased symbol distribution, or claim simply using some criterion, but the claim recites "determining a DPCM prediction mode based upon which DPCM prediction mode from a group of available DPCM prediction modes produces residuals closest to an optimal two-sided, zero-biased distribution for RLGR coding." Sudharsanan does not teach or suggest this element of amended independent claim 14. Additionally, Sudharsanan describes prediction residuals **are mapped to a non-negative integer scale** and are coded using a new entropy-coded mechanism based on a modified Golomb Code (MGC). Thus, it would not be obvious to one of ordinary skilled in the art to choose "a DPCM prediction mode based upon which DPCM prediction mode from a group of available DPCM prediction modes produces residuals closest to an optimal two-sided, zero-biased distribution for RLGR coding" as described in amended independent claim 14.

As described above, Merhav does not cure this deficiency in Sudharsanan. To the extent that Merhav discusses Golomb coding, Merhav explicitly teaches **away** from a "two-sided, zero-biased distribution for RLGR coding" by stating that a more appropriate model is given by an **off-centered** two-sided geometric distribution. Additionally, at no point does Merhav teach, suggest, or even mention selecting one of multiple available DPCM prediction modes. Thus, Merhav does not teach or suggest "determining a DPCM prediction mode based upon which DPCM prediction mode from a group of available DPCM prediction modes produces residuals closest to an optimal two-sided, zero-biased distribution for RLGR coding" as recited in amended independent claim 14.

Kajiwara does not cure this deficiency in Sudharsanan and Merhav with respect to the above recited language of amended independent claim 14. As described above, Applicants understand Kajiwara to describe only a single prediction mode, namely p=a+b-c. To the extent that certain flags are checked, the flags simply determine which conversion process to use for the prediction errors. This is different from, and does not teach or suggest "determining a DPCM prediction mode based upon which DPCM prediction mode from a group of available DPCM prediction modes produces residuals closest to an optimal two-sided, zero-biased distribution for RLGR coding" as recited in amended independent claim 14.

Because Merhav, Sudharsanan, and Kajiwara, whether considered separately or in combination with each other, do not teach or suggest each and every element of amended independent claim 14, claim 14 is allowable over Merhav, Sudharsanan, and Kajiwara. Applicants respectfully request withdrawal of the § 103(a) rejection and allowance of claim 14.

Irvine does not cure the deficiencies of Merhav, Sudharsanan, and Kajiwara with respect to the above recited language of amended independent claim 14. As described above, to the extent that Irvine describes prediction methods such as DPCM or a two-sided distribution, at no point does Irvine teach or suggest "determining a DPCM prediction mode based upon which DPCM prediction mode from a group of available DPCM prediction modes produces residuals closest to an optimal two-sided, zero-biased distribution for RLGR coding" as recited in amended independent claim 14. Even if, for the sake of argument, Irvine describes color space conversion as the Examiner alleges at page 9 of the Office Action, this does not cure the deficiency of Irvine with respect to the above recited language of amended independent claim 14. Because Merhav, Sudharsanan, Kajiwara, and Irvine, whether considered separately or in combination with each other, do not teach or suggest each and every element of amended independent claim 14, claim 14 is allowable over Merhav, Sudharsanan, Kajiwara, and Irvine. Dependent claims 15 and 16 are allowable at least because they depend from claim 14. Applicants respectfully request withdrawal of the § 103(a) rejection and allowance of dependent claims 15 and 16.

Similarly, Nakayama does not cure the deficiencies of Merhav, Sudharsanan, and Kajiwara with respect to the above recited language of amended independent claim 14. As described above, Nakayama describes three encoding modes in paras. 0058-0060. As Applicants understand Nakayama, the three modes are encoding modes for encoding the pixel. However, Applicants see no indication that the encoding modes involve "determining a DPCM prediction mode" as recited in amended claim 10. Because Nakayama does not teach, suggest, or even mention determining one of multiple available **DPCM prediction modes**, Nakayama does not teach or suggest "determining a DPCM prediction mode based upon which DPCM prediction mode from a group of available DPCM prediction modes produces residuals closest to an optimal two-sided, zero-biased distribution for RLGR coding" as recited in amended independent claim 14. Because Merhav, Sudharsanan, Kajiwara, and Nakayama, whether considered separately or in combination with each other, do not teach or suggest each and every element of amended independent claim 14, claim 14 is allowable over Merhav, Sudharsanan, Kajiwara, and Nakayama. Dependent claim 17 is allowable at least because it depends from claim 14.

Applicants respectfully request withdrawal of the § 103(a) rejection and allowance of dependent claim 17.

Claims 18-21 are Allowable Over Nakayama in combination with Irvine, Sudharsanan, and Kajiwara

Amended independent claim 18 recites, in part:

> de-modulating the RLGR-decoded DPCM residuals using a DPCM demodulation that is an inverse of the RLGR-decoded DPCM prediction mode wherein the DPCM prediction mode was selected during encoding based upon which DPCM prediction mode from a group of available DPCM prediction modes produced residuals closest to an optimal two-sided, zero-biased distribution for RLGR entropy encoding.

Amended independent claim 20 recites, in part:

> a DPCM demodulator for applying an inverse of the DPCM prediction mode to the DPCM residuals if the macro-block was encoded using a DPCM prediction mode wherein the DPCM prediction mode was selected during encoding based upon which DPCM prediction mode from a group of available DPCM prediction modes produced residuals closest to an optimal two-sided, zero-biased distribution for RLGR entropy encoding.

Nakayama, Irvine, Sudharsanan, and Kajiwara, whether considered separately or in combination with each other, do not teach or suggest the above recited language of amended independent claims 18 and 20.

As described above, Nakayama describes three encoding modes in paras. 0058-0060. As Applicants understand Nakayama, the three modes are encoding modes for encoding the pixel. However, Applicants see no indication that the encoding modes involve selection of a DPCM prediction mode as recited in amended claims 18 and 20. Because Nakayama does not teach, suggest, or even mention selecting one of multiple available **DPCM prediction modes**, Nakayama does not teach or suggest selection of a DPCM prediction mode during encoding "based upon which DPCM prediction mode from a group of available DPCM prediction modes produced residuals closest to an optimal two-sided, zero-biased distribution for RLGR entropy encoding" as recited in amended independent claims 18 and 20.

Irvine does not cure this deficiency in Nakayama with respect to amended independent claims 18 and 20. As described above, to the extent that Irvine describes prediction methods such as DPCM or a two-sided distribution, at no point does Irvine teach or suggest selection of a DPCM prediction

mode during encoding "based upon which DPCM prediction mode from a group of available DPCM prediction modes produced residuals closest to an optimal two-sided, zero-biased distribution for RLGR entropy encoding" as recited in amended independent claims 18 and 20.

Sudharsanan does not cure the deficiencies of Nakayama and Irvine with respect to the above recited language of independent claims 18 and 20. As described above, Sudharsanan merely states that "any suitable" criterion may be used. Applicants are not trying to specifically claim the existence of a two-sided, zero-biased symbol distribution, or claim simply using some criterion, but the claim recites selection of a DPCM prediction mode during encoding "based upon which DPCM prediction mode from a group of available DPCM prediction modes produced residuals closest to an optimal two-sided, zero-biased distribution for RLGR entropy encoding." Sudharsanan does not teach or suggest this element of amended independent claims 18 and 20. Additionally, Sudharsanan describes prediction residuals **are mapped to a non-negative integer scale** and are coded using a new entropy-coded mechanism based on a modified Golomb Code (MGC). Thus, it would not be obvious to one of ordinary skilled in the art to choose a DPCM prediction mode during encoding "based upon which DPCM prediction mode from a group of available DPCM prediction modes produced residuals closest to an optimal two-sided, zero-biased distribution for RLGR entropy encoding" as recited in amended independent claims 18 and 20.

Kajiwara does not cure the deficiencies of Nakayama, Irvine, and Sudharsanan with respect to the above recited language of amended independent claims 18 and 20. As described above, Applicants understand Kajiwara to describe only a single prediction mode, namely p=a+b-c. To the extent that certain flags are checked, the flags simply determine which conversion process to use for the prediction errors. This is different from, and does not teach or suggest selection of a DPCM prediction mode during encoding "based upon which DPCM prediction mode from a group of available DPCM prediction modes produced residuals closest to an optimal two-sided, zero-biased distribution for RLGR entropy encoding" as recited in amended independent claims 18 and 20.

Because Nakayama, Irvine, Sudharsanan, and Kajiwara do not teach or suggest each and every element of amended independent claims 18 and 20, claims 18 and 20 are allowable over Nakayama, Irvine, Sudharsanan, and Kajiwara. Dependent claims 19 and 21 are allowable at least because they depend from allowable claims 18 and 20, respectively. Applicants respectfully request withdrawal of the § 103(a) rejection and allowance of claims 18-21.

Interview Request

If the claims are not found by the Examiner to be allowable, the Examiner is requested to call the undersigned attorney to set up an interview to discuss this application.

Conclusion

The claims in their present form should be allowable. Such action is respectfully requested.

Respectfully submitted,

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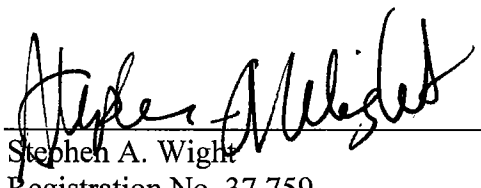
By 
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